A3 Cont'd

10. (New) The continuously variable speed power transmission of claim 8, wherein said transmission is in a vehicle wheel hub.

11. (New) The continuously variable speed power transmission of claim 3, wherein said transmission is in a vehicle wheel hub.

REMARKS

Claims 1-3 are pending in the present application and have been examined on their merits. By this amendment, claim 2 has been cancelled and claims 4-11 have been added. The Applicant believes that the new claims 4-11 are fully supported in the specification and do not represent new matter.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "**Version with Markings to Show Changes Made**."

The Applicant gratefully acknowledges that claim 3 has been allowed.

Claims 1 and 2 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. By the present amendment, claim 2 is cancelled and claim 1 has been amended. It is believed that amended claim 1 directed to a face gear embodiment of the continuously variable speed power transmission of the invention clarifies the relationship of face gear teeth (internal and external) on the input member, reaction control rotor, and two-faced motion converter. In view of the cancellation of claim 2, the rejection of this claim is now moot. The rejection under 35 U.S.C. §112, second paragraph, as directed to claim 1, should be reconsidered and withdrawn.

Claims 1 and 2 are rejected under 35 U.S.C. §102(b) as being anticipated by Davidson (U.S. Pat. No. 3,895,540). This rejection is in error. Davison discloses a nutation drive apparatus having teeth. The Examiner refers to Davidson's figs. 5 & 6, noting "output face teeth 66", "motion converter 60 with gear teeth". While Davidson does refer to teeth, this patent does not refer to "face" teeth or "bevel" teeth, and in fact does not even mention the teeth as being gear teeth. However, the teeth shown in Davidson's Figs. 3-8 appear to be straight external bevel gear teeth. It is presumed that the Examiner means "face" in the sense that gear teeth are located on the top of a disc (i.e., on the face of a disc) rather than on the circumference of a disc. In contrast, the present invention uses the term "face gear teeth" to refer to a special type of geometric gear tooth profile form. For example, face gears in the art are typically (i) spur or straight faced gears or (ii) helical or spiral faced gears. The teeth shown in Davidson's Figs. 3-8 appear to be straight external bevel gear teeth but lack such description. However, nowhere in Davidson is the tooth geometry of the present invention described. Davidson simply refers to teeth without any teaching of gear tooth profile form.

The Examiner notes (p. 5, third full paragraph) that Davidson (lines 54-67 of column 7) describes selection of "form and number of teeth". In contrast, it is the Applicant's position that Davidson clearly does not disclose tooth "form". Davison does not disclose applicant's motion converter with internal bevel or face gear teeth, let alone teach the critical importance of pitch angle being greater than 90 ° on the motion converter bevel and face gear teeth. Applicant's teaching of pitch angle overcomes the torque/load transfer limitations of Davison's straight external bevel gear teeth. The present invention overcomes this limitation by using internal bevel or face type gear teeth on the nutating motion converter member, thereby providing large Hertzian surface contact areas during torque transfer. Support for the pitch angle greater than 90° is found on page 6, lines 5-7 of the specification. Support for the conjugate external and

internal face and bevel type gear teeth embodiment in place of reaction and output rotor face cams and motion converter rollers is found on page 21, line 32 to page 22, line 3 of the specification. Davison not only does not teach or describe Applicant's face or bevel gear variable speed power transmission as presently claimed, but also certainly does not either teach the claimed (i) bevel or face gear transmission embodiments having integrated motors/generator components, or (ii) the location in a vehicle wheel hub. Support for the transmissions of the present invention in a vehicle wheel hub is found on page 21, lines 23-30 and elsewhere in the specification. The claimed devices of the present invention are not anticipated by Davidson. Accordingly, the Applicant respectfully requests that the rejection under 35 U.S.C. §102(b) as applied to pending claims should be reconsidered and withdrawn

The Applicant currently submits newly amended claim 1 directed to face gear embodiments of the invention, and new claims which depend from claim 1 which are directed to integrated motors/generator and vehicle wheel hub limitations (claims 4, 5 and 6). Also, the Applicant submits new independent claim 7 directed to bevel gear embodiments of the invention, and new claims depending from this claim directed to integrated motors/generator and vehicle wheel hub limitations (claims 8, 9 and 10). A new claim which depends from allowed claim 3 is directed to a wheel hub limitation.

The Applicant has submitted new claims 4-11, which are fully supported in the specification as noted above, to further describe the present invention.

In view of the above, the Applicant believes that the rejections under 35 U.S.C. §§112 (second paragraph) and 102(b) should be reconsidered and withdrawn. Reconsideration and allowance are earnestly solicited. Should there be futher issues, the undersigned would welcome a telephone call to facilitate their resolution

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claim 2 has been cancelled without prejudice.

The claims have been amended as follows:

1. (Amended) A continuously variable speed power transmission comprising:

an input member rotatable about an input axis;

an output member rotatable about an output axis including a plurality of rearwardly directed output rotor external face gear teeth thereon;

a conjugate reaction control rotor mounted for selective rotation about the input axis including a plurality of forwardly directed reaction external face gear teeth thereon in opposition to the output external face gear teeth on the output member;

a conjugate motion converter with internal face gear [type] teeth having pitch angles greater than 90 degrees embodied on both sides thereon and rotatably mounted for nutational and rotational motion about the input axis [including a plurality of load transmitting follower members on both sides thereon] that are simultaneously engageable with the output rotor external face gear teeth and with the reaction rotor external face gear teeth; and

control means for selectively adjusting the rate of rotation of the reaction control rotor relative to the input member;

whereby relative rotation between the reaction control rotor and the input member results in both rotation and nutation of the conjugate motion converter about the input axis and thereby results in a continuously variable change of ratio of the rotational speed of the output member relative to the input member.

The following new claims have been added:

4. (New) The continuously variable speed power transmission of claim 1, wherein said reaction control rotor is integrated with motors/generator components mounted for selective rotation about the input axis.

5. (New) The continuously variable speed power transmission of claim 1, wherein said transmission is in a vehicle wheel hub.

6. (New) The continuously variable speed power transmission of claim 4, wherein said transmission is in a vehicle wheel hub.

7. (New) A continuously variable speed power transmission comprising:

an input member rotatable about an input axis;

an output member rotatable about an output axis including a plurality of rearwardly directed output rotor external bevel gear teeth thereon;

a conjugate reaction control rotor mounted for selective rotation about the input axis including a plurality of forwardly directed reaction external bevel gear teeth thereon in opposition to the output external bevel gear teeth on the output member;

a conjugate motion converter with internal bevel gear teeth having pitch angles greater than 90 degrees embodied on both sides thereon and rotatably mounted for nutational and rotational motion about the input axis that are simultaneously engageable with the output rotor external bevel gear teeth and with the reaction rotor external bevel gear teeth; and

control means for selectively adjusting the rate of rotation of the reaction control rotor relative to the input member;

whereby relative rotation between the reaction control rotor and the input member results in both rotation and nutation of the conjugate motion converter about the input axis and thereby results in a continuously variable change of ratio of the rotational speed of the output member relative to the input member.

8. (New) The continuously variable speed power transmission of claim 7, wherein said reaction control rotor is integrated with motors/generator components mounted for selective rotation about the input axis.

9. (New) The continuously variable speed power transmission of claim 7, wherein said transmission is in a vehicle wheel hub.

10. (New) The continuously variable speed power transmission of claim 8, wherein said transmission is in a vehicle wheel hub.

11. (New) The continuously variable speed power transmission of claim 3, wherein said transmission is in a vehicle wheel hub.